

12928US HJB/AS/dr

Claims

1. Device for frequency synthesis, comprising oscillator means (1) that can be driven for the purpose of generating, at a frequency outⁿ of a set of at least two possible output frequencies, an output signal (f_{OUT}) that can be picked off at an output, and a control device (2) for driving the oscillator means (1),
 characterized in that
 the control device (2) is of such design that, for the purpose of generating a desired frequency that is not included in the set of possible output frequencies, it drives the oscillator means (1) in such a way that the latter alternately generate at least two different output frequencies, out of the set of possible output frequencies, in such a way that the average value of the generated output frequencies over a certain time period is substantially the desired frequency.
2. Device according to claim 1,
 characterized in that
 the control device (1) is of such design that it drives the oscillator means (1) in such a way that the at least two generated output frequencies are alternated at an average frequency that is greater than the reciprocal value of the certain time period.
3. Device according to either of claims 1 or 2,
 characterized in that
 the control device (1) is of such design that it drives the oscillator means (1) in such a way that

the at least two generated output frequencies are alternated at an average frequency that is greater than the at least two possible output frequencies.

4. Device according to either of claims 1 or 2, characterized in that the control device (1) is of such design that it drives the oscillator means (1) in such a way that the at least two generated output frequencies are alternated at an average frequency that is less than the at least two possible output frequencies.
5. Device according to any one of the preceding claims, characterized in that the oscillator means comprise a digitally controlled oscillator (1).
6. Device according to any one of the preceding claims, characterized in that the oscillator means comprise a ring oscillator, wherein a current, out of a set of possible currents (I_0, \dots, I_4, \dots), can be supplied to the ring oscillator for the purpose of driving same.
7. Device according to any one of the preceding claims, characterized in that the oscillator means (1) comprise an LC element through which the output frequency can be determined.
8. Device according to claim 7, characterized in that

a total capacitance of the LC element includes at least one capacitor (C1-C6) that can be switched for the purpose of driving the oscillator.

9. Device according to either of claims 7 or 8, characterized in that the capacitance of the LC element includes at least one varactor diode (V1-V3) that can be driven for the purpose of driving the oscillator.
10. Device according to any one of the preceding claims, characterized in that the device comprises a frequency divider (7, 8) which is connected to the output of the oscillator means (1).
11. Device according to any one of the preceding claims, characterized in that the device is of digital design.
12. Method for frequency synthesis by means of oscillator means that can be driven for the purpose of generating an output signal (f_{OUT}) having an output frequency out of a set of possible output frequencies, characterized in that, for the purpose of generating a desired frequency that is not included in the set of possible output frequencies, the oscillator means are driven in such a way that they alternately generate at least two different output frequencies, out of the set of possible output frequencies, such that the average value of the at least two generated output

frequencies over a certain time period corresponds to the desired frequency.

13. Method according to claim 12,
characterized in that
the at least two generated output frequencies are
alternated at an average frequency that is greater
than the reciprocal value of the certain time period.
14. Method according to either of claims 12 or 13,
characterized in that
the at least two generated output frequencies are
alternated at an average frequency that is greater
than the at least two different output frequencies.
15. Method according to either of claims 12 or 13,
characterized in that
the at least two generated output frequencies are
alternated at an average frequency that is less than
the at least two different output frequencies.
16. Method according to any one of claims 12 to 15,
characterized in that
the method is executed by means of a device according
to any one of claims 1-9.